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UNIVERSITY OF PENNSYLVANIA EXCAVATIONS  
AT NIPPUR.

II. THE NIPPUR ARCH.

[PLATE XX.]

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In an article on the temple of Bel at Nippur, published in this JOURNAL, Vol. x, No. 1, I mentioned the discovery by Mr. Haynes of a "Roman" arch. This gave rise to an unfortunate misunderstanding, as though he had meant to ascribe the arch to the Roman period. In point of fact, Mr. Haynes claimed from the outset that he had discovered a true arch far antedating any hitherto discovered. At the time when my article was written I was unable to give any details regarding this arch, but since then the Committee has received from Mr. Haynes blue prints of the arch and its surroundings, which prove it to be a true key-stone arch, pointed, and older than the time of Sargon of Agane (3800 B. C.). The accompanying drawings, made from these blue prints by Mr. James T. Dye, will demonstrate, I think, the complete accuracy of Mr. Haynes' claim that he has discovered a true arch, older by many hundred years than any hitherto known.

It will be interesting to give the history of the discovery in his own words. Under date of Oct. 13th, 1894, he wrote as follows: "Underneath the spot where the greatest number of these terra-cotta water-vents were found [an illustration of these water-vents was given in the afore-mentioned number of the JOURNAL, FIG. 21] we have to-day come upon a drain extending under the walls of the aforesaid building. The drain appears to be older than the building above, and to have fallen into disuse before the building was placed above it."

A week later, Oct. 20th, he writes: "The drain reported in my last letter to have been found under the very ancient building

or edifice under the eastern corner of the ziggurat has been followed out, and at its outer or discharging orifice we have just found a section of an arch that may have originally covered the whole drain. This is a perfectly formed elliptical arch of one foot and eight inches span, and one foot one inch rise, with a total height of two feet four inches from the bottom to the top of the arch." And a month later, Nov. 24th, he writes that "the drain passes under the entire breadth of the edifice."



FIG. 41.—VIEW OF ARCH FROM THE INSIDE.

FIG. 41 gives a view of the arch above described "from the inside, before its front was opened. Two drain tiles are dimly seen

in the bottom of the arch." FIG. 42 gives "a more distant view" of the same arch. PLATE XX "shows the outward side of the arch. The arch here is forced out of shape. It would seem to have been done from the unequal pressure of the settling mass above it, when it was drenched, perhaps with percolating rain water, from above. Since the arch is laid in clay mortar the bricks would readily yield to unequal pressure, especially as these bricks



FIG. 42.—A MORE DISTANT VIEW OF ARCH.

are convex on one side, while they are flat on the other side. You will observe one of the tiles (broken) in the bottom of the drain and a smaller tile in the top of the arch. I do not profess to know the meaning of these tiles. It is, of course, possible that the water-vents [which, as stated above, were found very near this arch and drain] served some purpose in connection with the tile in the top of the arch. The size of the tile admits of such

possible use." Mr. Haynes then calls attention to the proximity of the drain and arch to the altar, and suggests the possibility that the drain carried away the waste from the altar, while the small upper tile, to which was probably attached a water-vent, brought water for drinking and other purposes.

The remaining illustrations (Figs. 43, 44, 45, 46) show the position of this arch in relation to the surrounding and superincumbent structures. Fig. 43 "gives a front [southeast] view of the

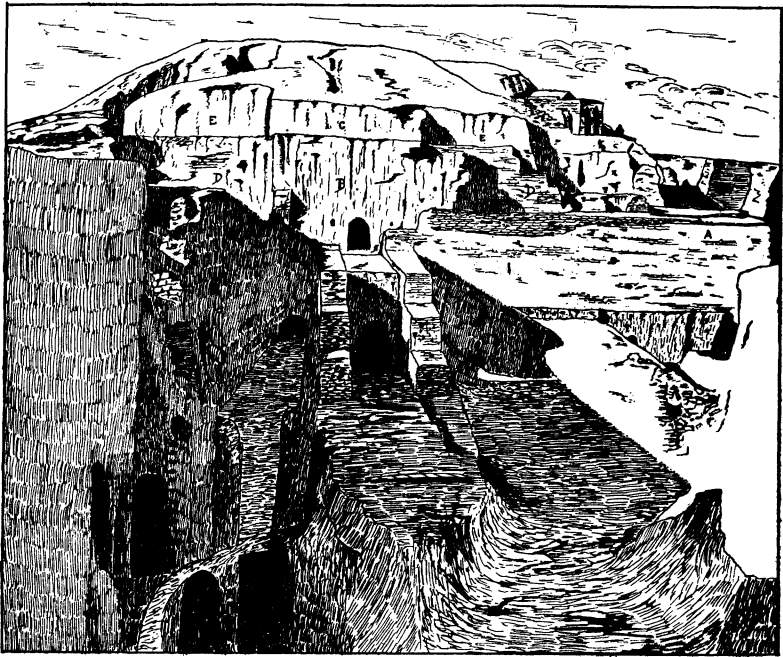


FIG. 43.—VIEW OF ZIGGURAT FROM SOUTHEAST.

ziggurat. It was taken from an opening in the great enclosing wall of the temple area in front of or southeast of the ziggurat itself. In the middle of the picture is the causeway, which may have been an approach to the higher stages of the ziggurat. It is composed of two parallel walls built of the burned bricks of Ur-Gur, many of which are stamped with the well-known eight-line inscription. The space between the two walls is filled with a regularly laid and solid mass of crude bricks, whose average

dimensions are 9 by 6 by 3 inches. These bricks are of the same mould, and in color and texture are identical with the crude bricks composing the greater part of the huge mass of the ziggurat built by the mighty builder Ur-Gur. The stepped appearance of the two walls of the causeway is the result of cutting down the walls to make a level foundation for the façade or crust of the later cruciform construction [built against and upon the ziggurat]. As this construction was built up solid, the outer part or crust cannot be spoken of as a wall. It was under this crust, corresponding to the wall of a building, that the parallel walls of the causeway were cut down to provide against the ponderous settling of the mass above it. The tunnel under the entire length of the causeway proves the structure, as it now stands, to be homogeneous, and therefore the work of a single builder, who is the great builder of the ziggurat, which is now freshly exposed to view.

"The original faces of the second and third stages of the ziggurat are respectively shown at D, D and E, E. B and C are central projections of the same stages. No such projections are to be found on any other side of the ziggurat. The design of these projections over the causeway is not evident." . . . "Whatever the purpose of this earliest causeway may have been, it seems to have suggested to the later generations the form that was adopted in the cruciform construction. At a higher level, and belonging to a later period than the causeway, were built from the middle of the four sides of the ziggurat, at right angles to its faces, four arms twenty feet wide and probably upwards of sixty feet in length. These arms were built of crude bricks, measuring  $14 \times 14 \times 6$  inches.

"The cruciform construction of later times was a broadening of these arms on essentially the same foundations, thus making an immense elevated platform. It may readily be supposed that a smaller ziggurat . . . rose from the centre of this great cruciform structure as a platform. . . . This accounts for the large and high cone of crude bricks still rising far above the cruciform construction. Whatever value one may assign to these suggestions, it is clear that the earlier causeway suggested the intermediate projections on the four sides of the ziggurat, and an enlargement of these produced the great cruciform construction."

In further elucidation of this illustration I may say that the shrine-like brick structure on the upper northeastern side of the ziggurat is not part of the ancient Babylonian temple, but a guard house erected by Mr. Haynes for his own protection at the excavations. The wall marked A is the face of the lowest stage of the ziggurat of Ur-Gur. On this side, and this side only, the lowest stage of the original was of burned brick, the remainder of the ziggurat being of crude brick, as stated in my recent article in the *JOURNAL*. To the left of the causeway represented in this FIG. 43 was found a door-socket of trachytic rock with an inscription of Ur-Gur. The suggestion is that this door-socket<sup>1</sup> originally stood on the causeway and was thrown down at the time when the later construction, described by Mr. Haynes, was built upon this causeway. In that case the causeway, as the approach to the ziggurat, was guarded by a gate. The form of the projections B and C, on the second and third stages, directly above the causeway, suggests some means of ascent to the summit, as by steps, at this point. The later reconstructions have, however, so modified the ziggurat at this point as to compel us to resort to conjecture.

The cruciform structure which the ziggurat later assumed, whatever its origin, reminds one forcibly of the square cross, which I have found in Babylonia as early as the time of Gamil-Sin of Ur (2400 B. C.), and which symbolized the sun. This cross represents the two diameters of a circle, and may be used either with or without the circle about it.

FIG. 44 "gives a good general view of the eastern corner of the ziggurat and the adjacent excavations." The wall of small baked bricks, broken into at the corner, is A of FIG. 43, the facing wall of the lowest stage of the ziggurat of Ur-Gur on the southeastern side. The brick wall visible on the northeastern side is of a later date, as explained in my late article in the *JOURNAL*. "The solid mass underlying the ziggurat of Ur-Gur, and included between the lines A-B, C-D, is a section of the platform of crude bricks ( $9 \times 6 \times 3$ ), eight feet in thickness, which the first and the

<sup>1</sup> A similar door-socket, found fifty or sixty years ago on or near the surface of the temple mound, is in the possession of a neighboring chief. I saw an impression of this stone in 1890, but was unable to purchase the original.

greatest of the monumental kings [Ur-Gur] made, not only to serve as the foundation of his splendid ziggurat, but also to form the pavement of the entire temple enclosure, defined by the inner line of towers, of which the two bastions in front of the ziggurat are integral parts. Below the line C-D, but not extending so

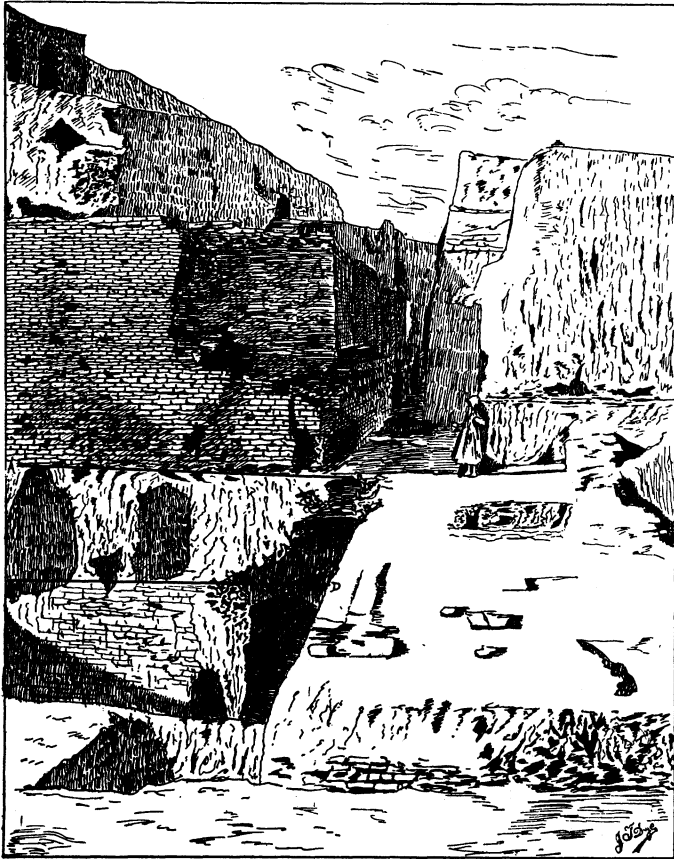


FIG. 44.—EASTERN CORNER OF THE ZIGGURAT.

far to the right as D, is the very ancient edifice descending eleven feet from the line C-D. There can be little doubt that it belongs to the time of, and is the work of some king of, the Sargon dynasty, or of an earlier king than even the very ancient Sargon." . . . "In the line C-D [under the letter D] is seen a fragment of a pavement. The bricks of this pavement are the bricks of Sar-



gon and of his son Naram-Sin. They are  $15\frac{1}{2} \times 15\frac{1}{2} \times 3$  inches in measurement."

Under date of Nov. 24th, 1894, Mr. Haynes gives the following account of this pavement: "Underneath the crude brick platform on which the ziggurat was founded was a bit of pavement, consisting of two courses of burned bricks. The lower course of the pavement contained several stamped bricks of Naram-Sin, and at least three or four of Sargon's stamped bricks. The pavement contained bricks and half bricks of Sargon and his son, and may have been laid by the latter, or by some successor of him."

That is to say, the bricks are evidently not old ones collected from other buildings or pavements by later kings and relaid at this point, but are found in their position as originally laid by Naram-Sin. It should be noted that we always find Naram-Sin in close association with his father, so close, indeed, that we might almost suppose that he was associated with him upon the throne; which association, if it existed, would well explain the use by Naram-Sin of new bricks of his father along with his own.

In confirmation of this date for this pavement are the additional facts that Mr. Haynes found at the eastern corner of the ancient building, immediately below the platform of Ur-Gur, a brick-stamp of Sargon, and that while he found various objects with inscriptions of Sargon and Naram-Sin above this pavement he found nothing of either of these kings below it. My own discoveries of the remains of Sargon in so far confirm this view of the age of this pavement, that I found remains of Sargon and Alu-Sharshid immediately beneath the Ur-Gur remains. It must be added, however, that I also found at some distance away remains of Sargon at a depth of  $7\frac{1}{2}$  feet below this. So, also, in excavating the city wall to the northwest of the temple [xi in the general map of the mounds published in the JOURNAL, PL. v] Mr. Haynes found crude bricks,  $20 \times 20 \times 3\frac{1}{2}$  inches, inscribed on the under surface with the name and titles of Naram-Sin, immediately beneath the familiar  $9 \times 6 \times 3$  bricks of Ur-Gur.

But if this platform of two courses of baked brick were built by Naram-Sin, it is then clear that the ancient edifice, the foundations of which are eleven feet below this platform, the altar, the

top of which is three feet below the platform, and above all the arched drain, the bottom of which is fifteen feet below the level of the platform, are older than the time of Naram-Sin. Mr. Haynes has been too modest to believe that he has made discoveries so much earlier than any heretofore made, or almost dreamed of, and in my article in the JOURNAL (X, 1) I followed too implicitly the example of his modesty. With the facts furnished by his latest letters and the accompanying photographs it is now clear that his later discoveries beneath the ziggurat are even much earlier than we had at first supposed.

In my article on the Temple, I, following Mr. Haynes, ascribed the building beneath the eastern corner of the ziggurat to Naram-Sin. It is clearly older, the pavement of the last-named king being flush with the summit of the remains of that building. The pavement, however, does not overlie this building, upon which, without anything intervening, rests the eight-foot thick platform of Ur-Gur, the foundation of his ziggurat. It was this lack of continuity of the pavement of Naram-Sin, with the immediate superimposition of the work of Ur-Gur upon the tower, just as the work of Ur-Gur is superimposed upon that of Naram-Sin in the external city wall, together with a partial resemblance in size and texture between the Naram-Sin bricks of the city wall and the bricks of the ancient tower, which caused the mistake.

Under date of Oct. 15, 1894, Mr. Haynes thus describes the ancient building beneath the eastern corner of the ziggurat: "A small and separate building . . . having an equal length and breadth of 23 feet, with a symmetrical and double re-entrant angle at its northern corner. It is built up solidly like a tower, and its exterior surface shows no trace of a door or opening of any kind. Its splendid walls, eleven feet high, were built of large crude bricks, each measuring one foot six and a half inches in length and breadth, and varying in thickness from  $3\frac{1}{2}$  to 4 inches. [The Naram-Sin bricks in the outer city wall measured  $20 \times 20 \times 3\frac{1}{2}$ .] The bricks were made of tenacious clay, thoroughly mixed with finely cut straw and well kneaded. The batter of its wall averages  $\frac{3}{4}$  inches to the foot."

FIG. 45 will give some idea of the relation to each other of this ancient tower (beneath which, it must be remembered, lies

the arched drain), the Ur-Gur ziggurat, the altar, and the archaic curb of brick described in the *JOURNAL*. The photograph from which the sketch was made was taken "from an elevated position nearly east of the corner." . . . "A is the first stage of Ur-Gur's ziggurat. B is a pavement, about ten feet wide, on which was laid the sloping bed of bitumen to protect the foundations of the ziggurat from falling rain. The tunnels under this pavement discovered the lower archaic edifice that is still without a name. The curb of primitive bricks, seven courses high, supposed to

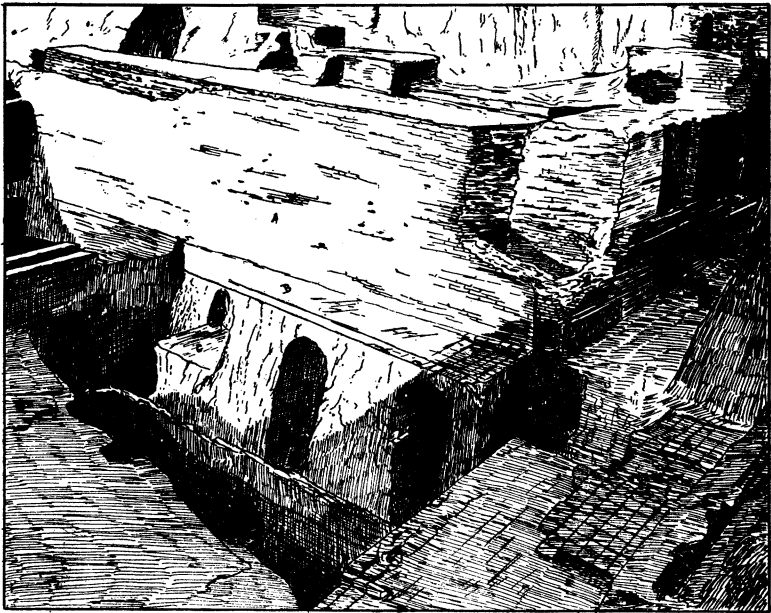


FIG. 45.—VIEW OF ALTAR AND CURB.

bound the sacred enclosure around the altar, cuts off the view of the lower part of the tunnels. A wall of unexcavated earth is left underneath the curb to support it in place. C is the early altar lying under the eight-foot pavement of Ur-Gur, as did also the curb, which is still lower than the altar."

The top of the altar, as already stated, was 3 feet below the bottom of Ur-Gur's platform. It was made of earth with a rim of bitumen around the edge on top. Its surface dimensions were

13 feet by 8. It was well covered with ashes, some of which proved to be bone ashes, and a bin or receptacle, also of unburned clay, to the left (southwest) of the altar was half full of ashes. To the right of the tower is seen a part of the pavement of Naram-Sin.

FIG. 46 will supplement FIG. 45 in explaining the relative position of the strata at the eastern corner of the ziggurat, and especially of the arched drain. It is a view from the top of the



FIG. 46.—EXCAVATIONS ABOUT AND ABOVE THE ARCH.

altar looking “down into the deep trench.” “G is the curb. The early arch is directly under the curb, and being in deep shadow is scarcely discernible. The arch covers the mouth of an open drain seen at H. At D is seen a bit of pavement higher than the curb. . . . This pavement consists entirely of the burned bricks of Sargon and Naram-Sin. Directly upon this pavement is placed the great crude brick platform, eight feet thick, of Ur-Gur. Be-

low this pavement at D no bricks of Sargon or of his son Naram-Sin have been found. It should be noticed that this pavement . . . . is on the level of the top of the lower archaic edifice, underlying Ur-Gur's platform; that it is three feet higher than the ancient altar, and that it is eleven feet above the foundation of the lower edifice, and fifteen feet above the bottom of the early drain and arch."

And now before summing up conclusions with reference to the arch and its date, it may be interesting to call attention to some of the objects found at or below the Naram-Sin level, but above the level of the arch, near the ancient tower. "In a layer of light gray ashes, some four inches in depth, on the northeastern side of this building, and nearly on a level with the top of its walls, and underneath the Ur-Gur platform of crude bricks was found a fragment of an unbaked tablet," also "several lumps of kneaded clay, and among them an imperfect tablet prepared on one side only for an inscription."

Besides the interest which this discovery has as showing the use of clay tablets at so early a date, it also exhibits the manufacture of tablets within the temple precincts, and in close proximity to, if not in connection with, the central shrine. It will be remembered that a pottery furnace containing a newly-baked tablet of a similar early date was found in front of the ziggurat to the southeast. More recently Mr. Haynes has discovered a deposit of unbaked tablets, apparently of the Cossaeon period, in a room close to the western corner of the ziggurat. I found a number of beautiful baked clay tablets, unlike anything else which I have ever seen, quite close to the ziggurat to the southeast, but above the Ur-Gur level. All of which suggests to my mind a connection between the Temple, and particularly the ziggurat, and the manufacture of the tablets, especially in the earliest period, when we may suppose that writing was more rare, and hence more sacred. It is noticeable that almost every inscribed stone found at Nippur has been found in the Temple, and the very few fragments found elsewhere were manifestly not in their original position.

"Several fragments of lime mortar have also been found in the debris near the walls of the above-mentioned building, and at a

depth of several feet below Ur-Gur's platform." The discovery of lime mortar would appear from this note of Mr. Haynes to have antedated Naram-Sin. The earliest use of bitumen for mortar which I remember to have observed at Nippur postdates this use of lime mortar, occurring in constructions of the time of Ur-Gur. As stated above, the bricks of the drain and arch were laid in mud. Considering the effect of running water on such mortar, one is almost inclined to argue that neither lime nor bitumen were known in Babylonia at the time of the construction of the arch.

At the beginning of October, 1894, Mr. Haynes wrote: "On the southeastern side of this ancient edifice, nine feet below the bottom of Ur-Gur's platform, two terracotta water vents were found." Toward the close of November he writes: "On the southeastern side of the above-mentioned building [the archaic tower], and on a level with its foundations, have been discovered ten basketfuls of the archaic water vents." . . . "All of these have been found within ten feet from the above-mentioned building . . . and on the sides nearest to the altar."

Attention has already been called to the possible relation of the archaic drain to the altar, and of the water vents to both. It is worthy of note that the necessity of holding and controlling water was one of the fertile causes in the early development of the art of baking and shaping clay in Babylonia. Among the apparently most ancient "finds" made by Mr. Haynes at Nippur was a terracotta fountain found in the bed of the Nil canal, which divided the city of Nippur into two parts. Under date of August 13th, 1893, he writes: "By means of a trench 87 feet long, with an average depth of 21 feet, we have at length found the ancient bed, and northeastern, or left bank of the Shatt-en-Nil at the narrowest point of the main canal, opposite to the hill marked IV on the general map of Nippur [viz., PLATE IV accompanying my late article in the JOURNAL]. At the depth of 20½ feet below the surface, in the middle of the stream, and at the point where the accumulations above it were least, the bed of the canal was found."

"In the debris accumulated above the bed of the stream, and seventeen feet below the surface, we found three fragments of an

ancient terracotta foundation of unique design, with interesting figures in high relief. One fragment, seven by ten inches, represents a priest clad in richly embroidered robes, and standing on the backs (shoulders) of two winged camels, I think possibly winged horses. Jets of water poured through the upturned heads of the animals. From the curvature of the fragments I judged the fountain to have been more than two feet in diameter, and there must have issued from it at least sixteen jets of water. To me these fragments are interesting from two points of view—first, as proving the existence of fountains at Nippur; second, as an example of somewhat archaic art, in which the perspective is bad and the species of the animals not easily distinguished, while the decorations and robes of the headless priest reveal the artist in a work of true merit.”

This fountain, together with the water-vents of terracotta and the arched drain with especially constructed tiles certainly show the importance of water works in the early art and architecture of Nippur. Mr. Haynes ventures the suggestion that the first use of baked bricks was due to the necessity of constructing drains and waterways capable of resisting the action of water. However this may be, the earliest arch yet found in Babylonia, or, indeed, anywhere, like the earliest arch found in Rome, the arch of the Cloaca under the Circus Maximus, was the arch of a drain or water-way.

As has been already pointed out, this arch antedates by a considerable period the time of Naram-Sin (3750 B. C.), since it lies beneath structures which were themselves older than his era. It cannot apparently be ascribed to a period later than 5000 B. C., if the date of 3750 B. C. for Naram-Sin be correct. A more precise date I do not as yet venture to propose, as the strata below the Ur-Gur platform has not yet been explored over a sufficiently large area. Below the bottom of this arch also there are from twelve to fifteen feet of debris which are practically unexplored.

As will be evident from the above descriptions of the arch and the position in which it was found Mr. Haynes has discovered a true arch of an almost incredible antiquity. After this article was already in type a letter from him under date of April 27th, 1895, announced the discovery of another arch, this time of crude

brick, in hill x, a part of the city separated from the temple by the Nil canal. He describes this arch as "pointed," by which I understand that he means sharp pointed, like the Gothic, and not blunt, or round pointed like the one described above. Mr. Haynes conjectured that this latter vault or arch might be older than 2000 B. C., and from the objects which he reports as found with it and about it his conjecture is confirmed, since these objects date from about 2500 B. C. We have, then, two arches from Nippur, one from about 5000 B. C., and the other from about 2500 B. C. The construction of the former of these arches shows us that at that very early period the principle of the arch was already thoroughly understood in Babylonia and that the arch already had a story behind it. To the best of my knowledge no other examples of the true arch have been found in Babylonia earlier than the Parthian or Sassanian period. This is due partly to the fact that so little excavating has been done among the ruins of that region, and partly to the fact that the upper portion of constructions of all sorts is the part which has almost always fallen completely into ruins. In Assyria, however, Layard found a vaulted room and more than one arch in the ruins of Nimroud. He reports these as true arches and says of one of them in his *Nineveh and its Remains*, Chap. XI: "The arch was constructed upon the well-known principle of vaulted roofs—the bricks being placed sideways, one against the other, and having been probably sustained by a frame-work until the vault was completed." At Khorsabad, Place discovered several arched drains, pointed, elliptical and round, but in these the bricks or stones were laid at an angle, each course having a support in the course before it, so that no frame was required in the construction, a method of building arches employed to this day in the Turkish empire.

In Egypt it is possible to trace somewhat more fully the development of the arch, but there also great lacunae are yet to be filled. The principle of the arch, support by thrust, seems to be recognized in the pyramid of Cheops, where the roof of one of the chambers, having an enormous weight to uphold, is formed by two stones resting against one another at an angle. The third pyramid, of the fourth dynasty, advances a step further. In this



the roof of one of the tomb chambers is formed of blocks of granite resting against one another at an angle, as in the pyramid of Cheops, but it is unlike the latter in that these blocks are hollowed out on the under side, thus giving an effect something like the English Gothic. A tomb at Abydos, of the sixth dynasty, described by Mariette, presents us with a keystone arch of elliptical shape in which the key and the two bases are of stone, while the intervening portions are of unbaked bricks, leaving large interstices to be filled in with mud and small stones. Two very ancient tombs at Sakkarah, the precise date of which is uncertain, exhibit the arch completely developed (Maspero, *Mission archéologique française au Caire*, I, 195), and by the time of the thirteenth dynasty elliptical and round arches become quite common in tombs.

While it is probable that in this as in other matters the civilizations of Egypt and Babylonia were parallel and not dependent, so far as our present information goes, the arch was known in the latter country earlier than in the former, the Nippur arch, discovered by Mr. Haynes, antedating the earliest true arch yet found in Egypt by more than a thousand years.

The earliest arch yet discovered outside of those countries, namely the Cloaca under the Circus Maximus at Rome, is nearly contemporary with the arches found by Layard at Nimroud, and more than four thousand years later than the earliest arch discovered by Haynes at Nippur.

In conclusion, although it has no bearing upon the subject of this arch, or its date, I will take this opportunity to correct what now appears to be an erroneous statement in my article in the JOURNAL on the Temple of Bel, on the basis of fresh information from the field. As I stated then, we are not yet in a condition to reach final results in many points, and, as all know, theories are apt to be overturned by new facts, even when we think we have them well established. I suggested that the two towers on the inner wall of the temple enclosure were pillars of the same nature as Jachin and Boaz in the Jewish temple, conventionalized phallic symbols. Mr. Haynes appears at length to have established the fact that they were bastions on a line of fortification enclosing the temple court, erected by Ur-Gur, and rebuilt or built upon by others at a later date. His final proof, which

seems convincing as to the intention of the towers, at their last reconstruction at least, is the discovery of a parapet, something which strangely enough I failed to find. It was the fact of the cone-like shape of these towers, precisely like gigantic phalli of a type very common at Nippur, in conjunction with their position, which reminded me of that of the solid cone-shaped structures found by Bent in Mashonaland, and the use of the two columns in Syrian, Phoenician and South African temples, as well as at Jerusalem, which led me in reconstructing the temple to form such a theory regarding them.

It ought to be added that small phallic symbols are very common in the Temple at Nippur. Some of these represent the male organ in the most completely naturalistic fashion, and from these to the inscribed nail-shaped objects, found in such large numbers at Tello, we have been able to form a complete and unmistakable series. These phalli were for the most part scattered promiscuously through the debris at all levels from the surface downward. Once only we found them in unmistakable connection with a wall, thrust into the bitumen mortar between the bricks, or lying at the bottom of the wall in a position which suggested that they had once been thrust into it. It will be remembered that at Warka Loftus found a wall constructed entirely of these cones, arranged in patterns. I do not remember any report from M. de Sarzec with reference to the use made of these cones at Tello, but in examining his excavations I saw a wall from which his workmen said that he had obtained a very large number of nail-headed, inscribed cones, where the cones were built into the wall without pattern or order in the bitumen between the bricks. There were certainly hundreds of these cones in the wall at the time that I saw it. What was the meaning of this use of the cones I do not know, but that the cones were conventionalized forms of the phallus was clearly established by the series collected at Nippur. In view of the ubiquity of phallus symbols in Babylonian ruins, and their varying sources, I trust that I may be pardoned for my mistake in regard to the cone-like towers or bastions.

JOHN P. PETERS.

St. Michael's Church,  
New York, June 15, 1895.



THE NIPPUR ARCH.